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Development of diploma platform and analyzing the impact of Beta Career platform to students diploma preparation

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Topic of the thesis:

Development of diploma platform and analyzing the impact of Beta Career platform to students diploma preparation

Thesis submitted as part of the requirements for the award of the MSc in
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Declaration

I certify that this is my original work and that any borrowed ideas have been appropriately and completely acknowledged.

Duman Telman

2023

Acknowledgements

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Dedication

This thesis is dedicated to:

I dedicate my dissertation to Bauyrzhan Berlikozha, my advisor, whose direction, knowledge, and unflinching support were crucial to the accomplishment of this study. Your guidance, inspiration, and insightful comments have greatly influenced the growth of my work and defined my academic career. I appreciate the chances you have given me to advance both professionally and personally.

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Abstract

Internships for students are essential to their academic and professional development. This study examines how internships impact students' graduation projects using a comparative methodology. The research looks at how internships impact the overall quality, importance, and creativity of students' diploma projects. The study's goal is to identify the key factors that control how internships affect final projects. It will look at a variety of subjects, such as how internship experiences relate to the project topic chosen, how practical skills are developed, and how real-world challenges are encountered. Additionally, the study will examine how internship mentorship and support might raise the quality and originality of students' work. Graduate student unemployment is one of the world's most pressing issues right now. I will study unemployment in Kazakhstan and compare it with student unemployment with the effect of the beta career program.

Аңдатпа

Студенттер үшін тағылымдамадан өту олардың академиялық және кәсіби дамуы үшін өте маңызды. Бұл зерттеу салыстырмалы әдістемені қолдана отырып, студенттердің дипломдық жобаларына тағылымдамадан өтудің әсерін зерттейді. Зерттеу тәжірибенің студенттердің бітіру жобаларының жалпы сапасына, маңыздылығына және шығармашылығына қалай әсер ететінін зерттейді. Зерттеудің мақсаты – тағылымдамадан өтудің қорытынды жобаларға әсерін анықтайтын негізгі факторларды анықтау. Онда тағылымдамадан өту тәжірибесінің таңдалған жоба тақырыбымен байланысы, практикалық дағдылар қалай дамиды және нақты мәселелерге қалай тап болатындығы сияқты әртүрлі тақырыптар қамтылады. Сонымен қатар, зерттеу тәжірибе кезінде тәлімгерлік пен қолдаудың студент жұмысының сапасы мен өзіндік ерекшелігін қалай арттыра алатынын тексеру. ЖОО түлектері арасындағы жұмыссыздық қазіргі таңда ең өзекті жаһандық мәселелердің бірі болып отыр. Осыған орай, Қазақстандағы жұмыссыздықты зерттеп, оны мансаптық бета карьера бар студенттік жұмыссыздықпен салыстырамын.

Аннотация

Стажировки для студентов необходимы для их академического и профессионального развития. В этом исследовании рассматривается влияние стажировок на выпускные проекты студентов с использованием сравнительной методологии. В исследовании рассматривается, как стажировки влияют на общее качество, важность и креативность дипломных проектов студентов. Цель исследования — определить ключевые факторы, определяющие влияние стажировок на итоговые проекты. В нем будут рассмотрены различные темы, например, как опыт стажировки связан с выбранной темой проекта, как развиваются практические навыки и как встречаются реальные проблемы. Кроме того, в исследовании будет изучено, как наставничество и поддержка во время стажировки могут повысить качество и оригинальность работы студентов. Безработица среди выпускников вузов сейчас является одной из самых острых мировых проблем. Я буду изучать безработицу в Казахстане и сравнивать ее со студенческой безработицей с эффектом бета-карьеры.

Abbreviations

SDU Suleyman Demirel University

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Chapter 1

Introduction

Today's educational system is heavily reliant on teaching personnel, tools, and resources. Additionally, there is much work to be done in the areas of education improvement and unemployment reduction. These two things are eligible for the Beta Career program. See in the Figure 1.1 The business world contributes significantly to the university's ability to design a curriculum that will provide graduates the skills necessary to fulfill business requirements.

Let's take a look at the Beta Career program. For fourth-year students (or third-year students returning from college), Beta Career is a customized program that includes all electives for the penultimate semester (the semester before the final) of a study program. The prerequisites for the optional Beta Career are outlined in the following sections. There is a limit on the number of students who may enroll in Beta Career. The rest is information about Beta Career program provided in the last part of dissertation.

Many university programs now include internships as a necessary component because they provide students the chance to bridge the knowledge gap between the classroom and the real world. These internships have a big impact on students' career paths as well as the quality and results of their diploma work. This research looks at how internships affect students' diploma projects, examining how these chances for experiential learning improve academic performance and promote career growth.

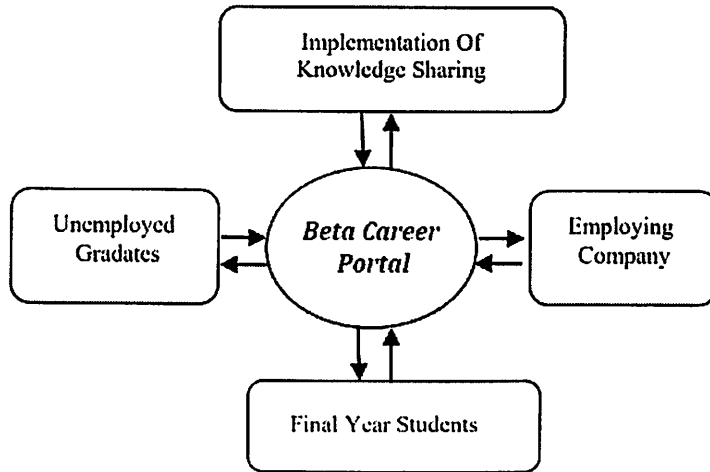


Figure 1.1: The ideation of the connection between the online portal, students, and businesses.

Let's start by discussing concerns with unemployment. Unemployment is one of the main social issues that both developed and developing countries face. For instance, the rate of unemployment in Europe has been steadily increasing since the 1970s. One of the causes of this issue, according to Dorn and Naz [1], is the uneven distribution of or lack of information about work prospects, which prevents individuals from being aware of any new job openings. It implies that there are some vacant employment but that job seekers are not aware of this information. An efficient internet search may help job seekers in their hunt for work. Some websites provide job searchers an effective method to search the internet for information about open positions [2].

Today, the internet has changed many aspects of our life, such as the way we look for jobs. If one is seeking for job [3], one may submit a resume online using word processing software like Microsoft Office Word and get an email in return. Online recruitment is currently the preferred method for both employers and job seekers to achieve their specific objectives.

The employment portals get the job postings from the companies. Most big firms, as well as many smaller ones, now accept hiring candidates online. Organizations engage with candidates through email and the internet by sending information or job openings for publication on the portals.

According to a study published in the journal Higher Education [4], internships

at higher education institutions can significantly boost graduate employment, especially in polytechnics and public education. The authors of the study also found that compulsory internships and the inclusion of several short internships throughout the course of study were negatively associated with graduate unemployment rates.

However, not all internships are equally beneficial for employment. An article on the Investopedia [5] website raises the question of the controversy and impact of unpaid internships on the labor market, the economy and the students themselves. Unpaid internships are often accused of exploiting students and exacerbating socioeconomic and racial inequalities. In addition to providing free labor to employers, unpaid internships can also disadvantage fully paid workers.

Another factor that can affect the chances of getting an internship is having previous internship experience. An article on The Conversation [6] reports that students who have already had a paid or unpaid internship are more likely to get another internship than those who have not. This can create problems for those students who cannot afford to work for free or do not have access to internship opportunities.

Thus, it can be concluded that internships at universities can have different effects on unemployment depending on the type, nature and availability of internships.

Internships expose students to the working world and provide them the chance to put their classroom knowledge into practice in real-world scenarios[7]. Students may acquire important skills, broaden their sector knowledge, and gain understanding of the needs and expectations of the workplace by participating in internships. This exposure may have a big impact on how in-depth, pertinent, and applicable their diploma work is, allowing students to generate study that is based on real-world experience.

The goal of this research is to examine the ways in which internships help students' graduation projects grow. It will examine how the real-world knowledge acquired via internships influences the research ideas, approaches, and results of students' academic work. Understanding these factors will help us better under-

stand how internships encourage students to take a more thorough and practical approach to their diploma projects, which will eventually improve the caliber and usefulness of their research.

This research will also look at how internships affect students' professional growth. Students have the chance to establish professional networks, learn specialized skills, and receive firsthand knowledge of various career choices via internships. Students may explore their interests, hone their professional objectives, and make wise judgments regarding their future aspirations by participating in internships. Students' overall professional development may benefit from the information and experiences they obtain through internships, which can aid them in finding work or pursuing additional study in their subject of interest.

This dissertation will discuss possible difficulties and restrictions in addition to examining the advantages of internships. It will look at things like the accessibility and availability of internships, the quality of supervision and mentoring, and the consistency between internship requirements and requirements for diploma projects. In order to best integrate internships into the diploma work process, the research intends to identify these issues and provide advice to universities, academic advisers, and internship providers.

This dissertation will provide empirical data and useful insights on how internships affect students' diploma work by combining qualitative and quantitative research approaches, such as surveys, interviews, and case studies. Understanding the interactions between internships and academic projects will help us communicate with universities and other higher education stakeholders about best practices, areas for improvement, and how to make the most of internships for learning and career development.

Graduates experience a crucial turning point in their life as they go from school to employment, which is accompanied by a wide range of possibilities and difficulties. Securing meaningful work after graduation has become a major goal for those looking to take use of their educational accomplishments and launch successful careers in today's dynamic and competitive labor market. In this dissertation, the career prospects for graduates are examined, along with the variables that

affect how well they make this difficult transition.

An increasingly competitive and demanding job market instigates rivalry among organizations and potential applicants for job positions [8]. The employment market's characteristics have changed significantly during the last several years. Graduates now need to adjust to new realities and changing skill needs as a result of globalization, technological improvements, and change industrial expectations. The availability and security of work possibilities have also been influenced by the aftermath of economic crises and other socio-economic variables, further complicating the career path for recent graduates.

This dissertation looks at the many factors that affect graduates' chances of finding work. It will dive into issues including educational requirements, abilities and competences, market circumstances for the workforce, and the impact of social and demographic traits. Understanding these elements will help us better understand the difficulties recent graduates have in finding jobs and suggest methods to improve their employability.

Because of the enormous gap between a university education and real-world experience, internships are the greatest method to put what we are learning in the classroom into practice. Because university students lack corporate expertise and are consequently useless assets for businesses, the unemployment situation has become worse. Instead of learning every talent, a university student should concentrate on a few key abilities since they will only be hired for jobs that need those specific skills, thus they must excel in them. It differs from schools in which you must get high scores in each subject to be admitted to prestigious institutions. Simply follow your passion and your area of expertise by sticking to it. You will feel at ease in the corporate world if you do internships while in university. You'll be aware of what to do and how to carry it out. Because of internships, the hesitation factor will be reduced. You will be seated among individuals of all ages, which will enable you to get accurate advice from an expert.

This dissertation also will add to the body of knowledge on employment after graduation by doing empirical research, assessing existing data, and obtaining viewpoints from graduates and employers. It will provide helpful suggestions

to help graduates get through the challenges of the labor market, improve their employability, and finally find satisfying and long-term career prospects.

1.1 Motivation

The academic and professional paths of students are significantly shaped by their internship experiences. Students are motivated to learn new things, hone their talents, and get ready for their future employment when they start their university education. Traditional classroom instruction, however, may not completely provide students with the real-world exposure and sector-specific knowledge required for success in their chosen careers. This insight emphasizes the need of internships in bridging the divide between theoretical knowledge and practical implementation.

It is impossible to ignore how internships affect students' graduation projects in a university setting [9]. A diploma project is the result of several years of academic study and demonstrates a student's breadth of knowledge and level of experience in their profession. Students have the chance to add a higher degree of authenticity and practical relevance to their graduation projects by combining the experiences they obtained during internships.

Investigating how internships affect diploma projects has many different goals in mind. First and foremost, it's critical to acknowledge how internships affect students' academic aspirations. Students who participate in internships are exposed to the reality of their particular businesses, seeing firsthand the difficulties, trends, and best practices that may not be completely represented within the walls of a classroom. They get a greater grasp of their topic as a result of this experience, which enables them to approach their diploma projects in a more sophisticated and thorough manner.

Second, educational institutions and policymakers must comprehend how internships affect diploma initiatives. It sheds light on how successful internships are as a teaching tool and draws attention to how they might raise the general quality and applicability of students' academic work. Understanding the value of internships may inspire the creation of internship programs that are more closely

matched to students' academic objectives, resulting in a more seamless fusion of theory and practice.

Examining how internships affect diploma projects also has ramifications for students' potential future careers [10]. Along with academic accomplishments, employers place a higher priority on real-world abilities and practical experience. We can better understand how these experiences affect students' employability, professional development, and long-term success in their chosen industries by looking at how internships influence students' graduation projects.

In light of these motives, the purpose of this research is to look into and assess how internships affect students' diploma projects within the setting of universities. The quality of higher education may be improved and students' abilities and competences can be improved by participating in an internship while in college. It assists in bridging the knowledge gap between academic theory and workplace application [11]. This study aims to identify the ways in which internships affect the content, technique, and overall quality of diploma projects by investigating the experiences, viewpoints, and results of students who have taken part in internships. Through this investigation, important knowledge may be gathered to improve educational processes, encourage tighter academic and industrial partnerships, and enable students to make significant contributions to their areas of study.

Finally, this dissertation aims to emphasize the value of experiential learning in higher education by illuminating the mutually beneficial link between internships and diploma projects. We can create a more complete and effective educational experience that gives students the information, skills, and experiences they need to succeed in their academic and professional goals by understanding how internships influence diploma projects.

1.2 Aims and objectives

The purpose of this dissertation is to examine and evaluate how internships affect the standards and results of diploma projects. Examining how internships affect students' knowledge, abilities, and general performance while they complete

their graduation projects is the goal of the research. This study aims to provide light on the advantages and difficulties of incorporating internships into academic programs by evaluating the interaction between internships and diploma projects. The ultimate goal is to raise awareness among educational institutions, learners, and business stakeholders of the potential benefits of internships in raising the quality and importance of diploma projects.

By focusing on these goals, the dissertation hopes to clarify how internships and diploma projects relate to one another and provide evidence-based information to guide educational practices and policies. The results of this study will help people better grasp the advantages, difficulties, and room for development in including internships as an important part of diploma programs.

1.3 Thesis outline

The Introduction chapter is the first chapter. This is the one you are reading right now. It sheds light on the job that was done. There are other subjects covered here that are connected to this thesis. You may learn explicitly why they were used, how they function, and how they relate to one another. You may learn about the project's methodologies in Chapter 2 of our assessment. Here, you may see every procedure in detail. How I collect or bring data from the portal platform is described in Chapter 3. This chapter also shows how huge it is and what's within. And we wrap up our conclusion in the chapter titled "Conclusion." You may read about my future intentions or other duties that will be accomplished in chapter 6 at the conclusion. You may also see a reference and bibliography for my thesis. Suleyman Demirel University, Kaskelen, shall be abbreviated as SDU.

Chapter 2

Literature review

2.1 Related works

Internships have been regarded as win-win scenarios for both companies and interns since they are voluntary, temporary work assignments that are often taken on by students at the university and college levels [12]. Employers are not required to guarantee genuine employment, and interns may further their careers. Evidently, internships play a significant role in how employable college grads are [13], and universities throughout the West have recently begun to recognize the significance of career-furthering measures [14]. However, there is still disagreement over the precise advantages of internships and how they work [15]. Without a doubt, internships may, in the correct situations, directly and favorably impact a variety of career indicators. Internships are linked to higher perceived attractiveness of job applicants to recruiters compared to no such experience, graduates finding jobs more quickly and easily [16], higher salary levels, and greater job satisfaction, according to studies specifically relating to business education and training. And there are also issues with unemployment. To prevent this problem, we should use the Beta Career website (Figure 2.1), which will be presented in Chapter 5.

The Internet has evolved into the primary informational resource for job searchers in the modern day. about their websites, major organizations, institutions, and

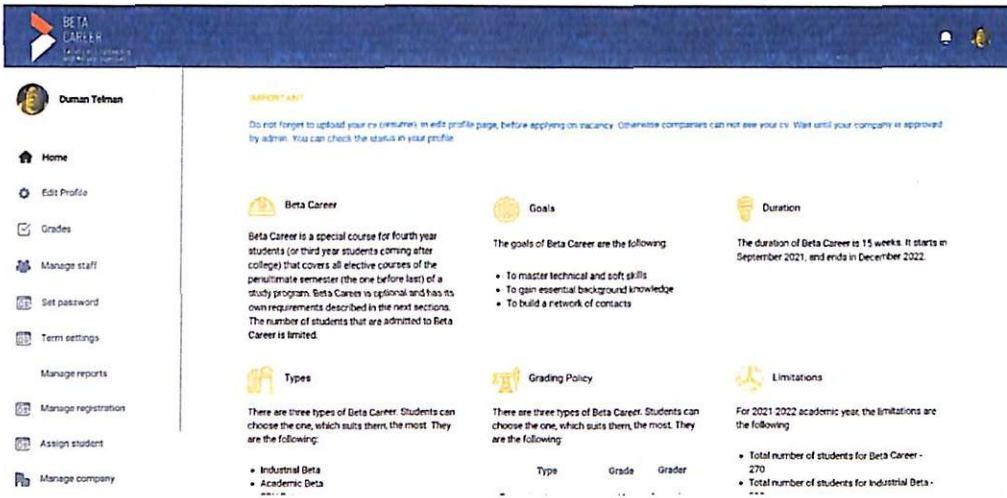


Figure 2.1: Beta Career Website.

colleges provide information about job opportunities. According to a report, 70 percent of the workforce in France utilizes websites or online job boards to look for employment. These websites or portals provide a search engine to acquire details about available jobs [17].

According to Sulaiman and Burke [18], the majority of firms are eager to hire personnel using internet recruiting channels. He said that the top candidates may be found via internet recruiting techniques. That is the reason increasingly sophisticated nations, like Malaysia, have begun to embrace online job portals as one of the crucial methods for filling job openings. According to a research conducted in 2006, 21 percent of internet users in the EU used the internet to look for employment or submit job applications. This number rose to 67 percent for jobless persons in 2007[19].

Most businesses either utilize online job sites or post their open positions on their websites. These techniques provide significant cost savings. According to Mochol and Nixon, the adoption of semantic web technologies increases market transparency and procurement speed while lowering transaction costs. Today, a significant majority of company transactions are conducted online. People consider the Internet to be a useful tool for communication. 90 percent of German job searchers use the internet to hunt for employment, according to a 2005 research. The fact that candidates are young, highly qualified, and often online, as well as the fact that many businesses post their job openings online and via their portal,

may be contributing factors to the high percentage of internet applications.

When looking for a job, jobseekers often begin their search on job sites. As a result, some employment sites charge businesses a lot of money to post information about open positions. Despite this, a lot of firms still post limited employment opportunity information on the job site or advertise for open positions there. Many firms still think that job seekers would go to employment sites to look for openings [20].

A strong employment site can encourage people to share their expertise. Online employment portals are becoming more prevalent. It is estimated that 75 percent of those looking for work utilize the internet and online job boards. According to Gangle [21], internet hiring provides the following benefits: Employers may quickly and easily find a large number of qualified job applicants. It indicates that businesses or organizations may broaden their search area, giving them a higher chance of choosing the most eligible applicants. Internet gives companies a chance to draw in more applicants, particularly those who meet the employment criteria. In contrast to newspapers, which only reach local audiences, internet recruiting allows consumers access to employment information from anywhere in the globe. The price is a crucial component of the employment site. Compared to alternative media like newspapers or job fairs, companies pay less to list or promote job openings via portals or websites. Online hiring is also very quick and time-saving. Jobseekers may explore open positions on the platform once companies post them and submit their resumes.

Therefore, saving money and time are two important benefits of employment portals. According to Ganalaki[19], who was referenced by Rosita and Nadianatra in 2007, the Internet is a tool without boundaries and a great way to reach a global audience.

To increase employment mobility, one strategy is to provide online job offer services. Job searchers might benefit from online job portals since they provide all the necessary information regarding open positions in one place. As candidates may match their credentials and talents to the needs of businesses, such portals increase recruiting efficiency.

Because job seekers receive information from job portals while conducting a search, online job seeking often entails a process of information gathering[22].

A successful job portal lets its members and users exchange knowledge and experiences. Better judgments may be made as a result of saving time and effort[23]. The qualifications and talents of an applicant may be matched to the needs of available positions. In this method, employment sites return both the exact matches and the matches that are the most comparable. The members of the European Commission (EC) stated that online job portals should have a number of the same features, including a database of positions that can be searched by job seekers online; facilities for sending CVs to the website; email alerts of jobs that match the user's profile; additional information, such as about working abroad or career guidance; the ability to manage job applications; and employers must be able to publish and manage job listings.

This study's primary focus is on the tools used and the standards that the system must meet. The goal of this study is to create a knowledge system that will enable SDU E-recruitment. The study makes an effort to establish a fresh connection between college students, jobless recent graduates, and the IT sector. This connection will show how information exchange is done online to assist students in finding employment.

The purpose of this study is to create a web portal that will serve as a knowledge-sharing system for SDU undergraduate students, giving them access to adequate material to aid in employment selection. The employment site at the system's highest level establishes a connection between jobless graduates and ICT organizations and businesses. This website should serve as an online hiring tool to assist recent graduates or students in their last year in finding employment online. This collaboration between academics and business leaders, with a focus on information exchange, may improve the quality of the learning environment.

The web site created in this project intends to enhance cooperation between academics and business leaders, establishing a dynamic environment for information sharing in addition to acting as an online recruiting tool. The site may promote networking possibilities and information exchange by bringing together

students, recent graduates, and business experts. Students may obtain a greater grasp of the sector and its needs by taking advantage of the perspectives and experiences given by experts. Similarly, firms may work with bright people from an early age, helping to cultivate a competent workforce. This collaboration between academics and business improves the learning environment and solidifies the link between training and employment, eventually helping students and business as a whole.

Chapter 3

Methods are used

3.1 Methods are used

This section will describe the process of data collection for the project. So, let's start from the questionnaires. Questionnaires are a structured data collection method that involves a set of carefully designed questions used to gather information and opinions from a targeted group of respondents [23]. They are typically administered in a written format, either on paper or electronically, and can be self-administered or conducted through an interviewer.

A methodical and effective way to gather data is via the use of questionnaires. They enable the gathering of quantitative as well as qualitative data on a range of subjects, such as attitudes, habits, preferences, experiences, and demographics. The questions in a questionnaire can range from closed-ended (multiple-choice, Likert scale, yes/no) to open-ended (allowing respondents to provide detailed responses). In my situation I have used Google form which is convenient for us and easy to use for students. A survey management tool called Google Forms is part of Google's free, web-based Google Docs Editors package. The service comes with Google Docs, Google Sheets, Google Slides, Google Drawings, Google Sites,

It provides a straightforward interface that is easy to use for creating forms that may be customized and gathering data. Here are some of Google Forms' salient characteristics and details:

Create a form using the user-friendly interface offered by Google Forms. There are many other question kinds available, such as multiple-choice, checkboxes, dropdowns, short answers, and others. To fit your identity or tastes, forms may be modified with various themes, colors, and graphics.

Response Gathering: After creating a form, it is simple to share it with others in order to get replies. Each form created with Google Forms has a unique URL that may be shared by email, social media, or website embedding. Additionally, you may restrict replies to a certain set of individuals or need respondents to check in with their Google accounts to view your form.

Google Forms supports team collaboration while creating forms. The ability for several users to collaborate on the same form at once makes it practical for team projects or for soliciting feedback from coworkers.

Response Analysis: As comments are sent, Google Forms automatically summarizes the information. Response summaries are available in real-time, along with data-visualization charts and graphs. Additionally, the replies may be exported to Google Sheets for in-depth analysis or interaction with other applications.

Advanced Features: To improve the surveying experience, Google Forms provides extra features. Features like question branching (conditional logic), which enables you to display or omit questions depending on prior responses, may be enabled. It also allows add-ons, which are external extensions from other programs that provide additional features like data formatting, data validation, or interaction with other programs.

Google Forms are usable and mobile-friendly on a range of gadgets, including desktops, laptops, tablets, and smartphones. In order to provide responders with a smooth experience regardless of the device they use, forms are built for mobile responsiveness.

Google Forms' seamless integration with Google Workspace allows it to work with all of the other apps there. Google Forms may be used as a quiz tool in Google Classroom, linked to Google Sheets for automated data collecting, or integrated with other Google services for an efficient workflow.

Free to Use: Anyone with a Google account may use Google Forms without charge. It provides a full range of functions without charging anything. Google Workspace, previously known as G Suite, is a premium version that offers more functionality and storage space for companies and organizations.

In general, Google Forms offers a simple and flexible framework for developing and distributing surveys, gathering replies, and data analysis. Due to its simplicity, adaptability, and interaction with other Google services, it is extensively used for a variety of reasons, including conducting research, collecting feedback, planning events, and more.

The design of a questionnaire entails taking the study goals into account, choosing the right question kinds, arranging the order of the questions, and making sure the questions are clear and easy for respondents to understand. Surveys, social sciences, market research, and assessment studies are just a few of the study applications for questionnaires.

In order to examine the information gathered through questionnaires, either statistical methods for quantitative data or thematic analysis for qualitative data may be used. Researchers may draw conclusions, spot trends, and make defensible judgments based on the data gathered thanks to the findings of questionnaires, which provide useful insights into the traits, beliefs, and behaviors of the target population.

So, about the use of questionnaires in my project. The first thing that I need from students is that, if the Beta Career program is useful to them or not. We can detect it in 2 ways. The first one as I said before, with questionnaires among the students and the second one with data which is collected from the portal. The collected data from the portal shown in the Figure 3.1, and data from questionnaire in Figure 3.2,

No	Name and Surname	Beta Career grade	GPA before Beta Career	GPA after Beta Career
15	Bolatbek Gaukhar	A / 96	3.35	3.42
16	Dossanov Aibar	B+ / 88	2.67	2.74
17	Emirali Rustam-Deniz	A- / 93	3	3.07
18	Gylymmedden Yerkebulan	A- / 92	3.01	3.08
19	Ismailova Dayana	A / 99	3.76	3.79
20	Kadylov Nurbek	A / 96	3.19	3.27
21	Kaireden Aldiyar	A- / 94	2.57	2.69
22	Kaparov Murat	A / 98	3.02	3.12
23	Kazhyymukhanov Alisher	A / 98	3.53	3.58
24	Khamidulloev Adil	A- / 90	3.37	3.4
25	Kuanyshebekov Alisher	B / 84	3.37	3.31
26	Kuanyshev Arlen	A- / 94	2.27	2.51
27	Kumangaliyeva Madina	A / 95	3.03	3.13
28	Kydyrbay Raiymbek	A- / 93	2.58	2.72
29	Manbay Shakhnazar- Sultan	A / 96	3.17	3.26

Figure 3.1: The collected data from portal.

Timestamp	Gender	How useful was the beta	Your GPA before Beta C	Your GPA after Beta C	Can Did the Beta Career Pro	Have you gained any kno
4/24/2023 17:33:51	Female	10	2.94	3.06	Yes	Yes
4/24/2023 17:34:19	Female	8	3.3	3.4	Maybe	Yes
4/24/2023 17:34:38	Male	10	3.28	3.38	No	Yes
4/24/2023 17:34:58	Male	10	3.19	3.26	Maybe	Yes
4/24/2023 17:35:39	Female	9	3.44	3.44	Maybe	Yes
4/24/2023 17:35:49	Male	10	3.65	3.7	Yes	Yes
4/24/2023 17:35:56	Female	10	3.75	3.79	Maybe	Yes
4/24/2023 17:35:57	Male	10	2.95	2.95	Yes	Yes
4/24/2023 17:36:00	Male	8	3.4	3.42	Maybe	Yes
4/24/2023 17:56:00	Male	10	3.3	3.4	Yes	Yes
4/24/2023 19:37:02	Male	7	2.45	2.54	Maybe	Yes
4/24/2023 20:26:39	Male	5	2.52	2.81	No	Yes
4/25/2023 13:10:06	Female	8	3.26	3.21	Maybe	Yes
4/26/2023 9:37:44	Female	10	2.75	3.75	Yes	Yes
4/26/2023 20:26:02	Male	9	3.34	3.42	Yes	Yes

Figure 3.2: Questionnaire.

In the questionnaire which was provided by Google Form was this type of questions:

- How useful was the beta career program for you?
- Your GPA before Beta Career program:
- Your GPA after Beta Career program:
- Did the Beta Career Program help you find a job?
- Have you gained any knowledge thanks to Beta Career?
- What do you think? Does the Beta Career program affect diploma project positively?
- If Yes how much? (Not Required)
- If No why? (Not Required)
- I consent to the use of my answers for research

After the collection of data, to know how our Beta Career program affects students diploma work we need to analyze our data. To analyze it I used the Correlation analysis method.

3.2 Correlation analysis

The first question is what is Correlation and when we use it. The link or association between two or more variables may be measured and quantified using correlation analysis, a statistical method. Indicating how the variables move together or change in regard to one another, it evaluates the direction and strength of the linear connection between them.

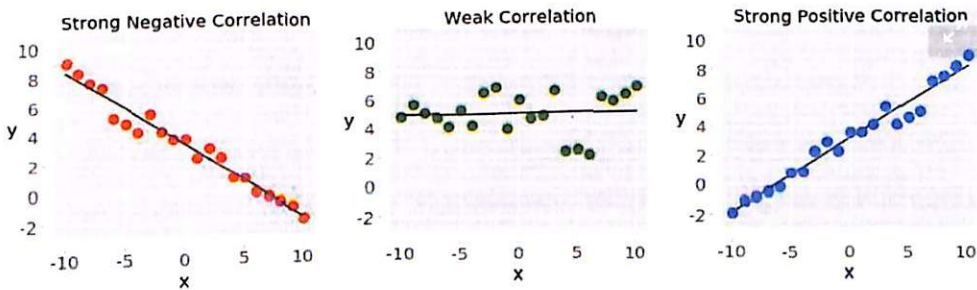


Figure 3.3: Pearson Correlation.

Correlation analysis calculates a correlation coefficient, which is a numerical value that ranges between -1 and $+1$. The correlation coefficient represents the degree of correlation between the variables. The sign ($+$ or $-$) indicates the direction of the relationship, while the magnitude (closer to 0 or closer to 1) represents the strength of the relationship [24].

The Pearson's correlation coefficient (r) (Figure 3.3), which assesses the linear connection between two continuous variables, is the most often used correlation coefficient. It is derived using the product of the standard deviations of the variables divided by the covariance of the variables. A positive r number indicates a positive correlation, which means that when one variable rises, the other usually follows suit. If the value of r is negative, there is a negative correlation, meaning that when one variable rises, the other tends to fall [24].

Numerous industries, including social sciences, finance, economics, and health-

care, may benefit from correlation analysis. It aids researchers and analysts in comprehending the strength of the correlation between variables, spotting trends, and formulating forecasts. It's crucial to remember that a connection does not always indicate a cause and effect. A high correlation between two variables only means that they tend to move in the same direction, not that one causes the other.

The link between variables that are assessed on ordinal or ranked scales may be determined using other forms of correlation coefficients, such as Spearman's rank correlation coefficient and Kendall's rank correlation coefficient [25]. Instead of the actual numbers, these coefficients are based on the rank order of the data.

Statistical software tools are often used to do correlation analysis, and the findings are analyzed and presented to offer insights into the connection between variables in a particular dataset.

According to the given data, I have used the Correlation analysis by using Python. In our case, a correlation coefficient of -0.1601 suggests a weak negative correlation between the variables being analyzed. The negative sign indicates an inverse relationship, meaning that as one variable increases, the other tends to decrease, and vice versa. However, the magnitude of -0.1601 indicates a weak correlation, meaning that the relationship is not particularly strong.

Noting that correlation does not indicate causation is crucial. The existence and intensity of a link between two variables are only indicated by a correlation coefficient; it does not reveal the underlying reason for the association or if one variable has a direct impact on the other. The pseudocode I created for this correlation is shown below.

- Import the necessary libraries (pandas, seaborn, matplotlib.pyplot)
- Load the Excel file using pandas:
 1. Specify the file path
 2. Use `pd.readexcel()` to read the file into a DataFrame
- Select the columns for correlation analysis:

1. Create a list of column names to include in the analysis
- Extract the selected columns from the DataFrame:
 1. Use DataFrame indexing to select the desired columns
 - Compute the correlation matrix:
 1. Use the `corr()` method on the selected data
 - Plot the correlation matrix:
 1. Use seaborn's `heatmap()` function to create a heatmap visualization
 2. Set the `annot` argument to `True` to display numerical annotations in the cells
 3. Specify a colormap of choice (e.g., `'coolwarm'`) for the plot
 - Display the plot:
 1. Use `matplotlib.pyplot`'s `show()` function to display the correlation matrix plot
 - End

the variables under analysis have a modest negative association, as shown by the correlation coefficient of -0.1601 . A complete negative correlation is represented by a correlation coefficient of -1 , a perfect positive correlation by a correlation coefficient of 1 , and no correlation by a correlation coefficient of 0 .

The -0.1601 negative correlation coefficient in this instance points to a tenuous inverse link between the variables. The link is not extremely strong, but it indicates that if one variable rises, the other one tends to fall. Positive or negative, the connection is weaker the closer the correlation coefficient is near 0 .

Keep in mind that a correlation does not prove a cause. A correlation coefficient does not identify whether one variable influences the other; it just assesses the degree and direction of the linear connection between two variables.

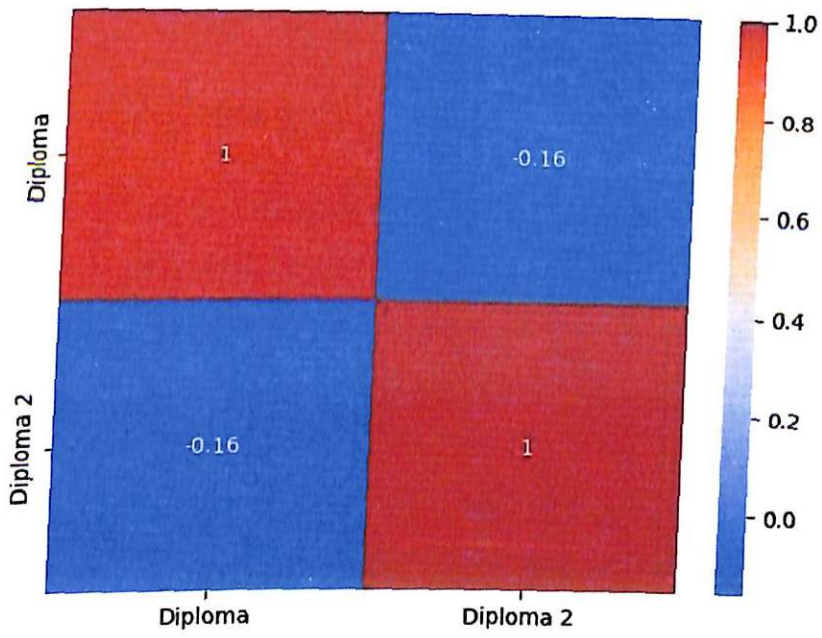


Figure 3.4: Heatmap.

Chapter 4

Preparation of Dataset

4.1 Data Collection

Data collection is the methodical process of obtaining information or data from multiple sources in order to analyze findings, respond to research questions, or acquire new perspectives on a specific area of interest. It entails gathering pertinent and trustworthy data to aid in analysis, decision-making, and knowledge creation.

There are several ways to gather data, including surveys, interviews, observations, experiments, document analysis, and using already-existing data sources. The study goals, the kind of data, the population or sample being researched, and the resources available all influence the technique of data collecting that is chosen. In our case, the data is collected from the portal, and there are some steps which you have to do if you need this data.

The first one is to ask permission from the Research Ethics committee. Their steps will be shown below.

- To help with the ethics review process Research Ethics committee prepared a short online SELF-ASSESSMENT FORM to understand whether you need review by Research Ethics Committee or not. Please fill the SELF-ASSESSMENT FORM first (Figure 4.1).

- **REQUIRED** you need to apply for Ethics Review.
- If ethics review is **REQUIRED** based on the **SELF-ASSESSMENT** results, you must fill this **ETHICS REVIEW FORM** and send it to rethics@sdu.edu.kz
- Upon receiving your **ETHICS REVIEW FORM**, the officer of the Research Ethics Committee will inform you in 10 working days about further

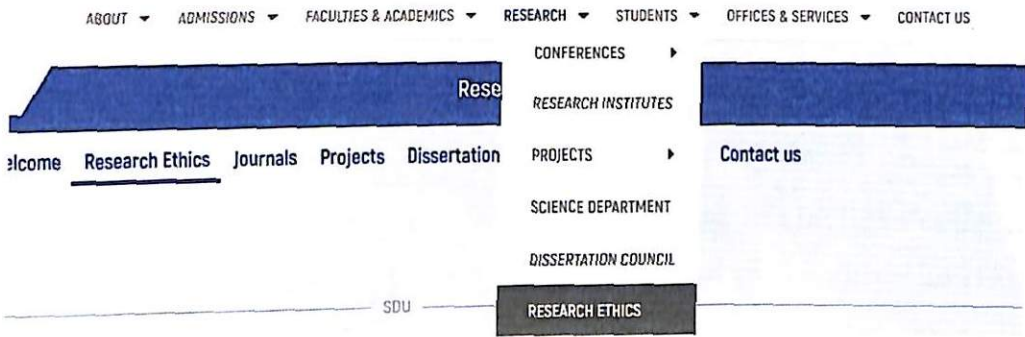


Figure 4.1: Asking permission for gathering data

Once this process is complete, you will get an email to your gmail. You can see it in Figure 4.2. The next stage is, as we previously said, gathering the data from the site. I have access to engineering students' grades on the portal since I am the practice coordinator, and I use this chance to see and gather their marks for my study. The collected data is, Beta Career grade, GPA before Beta Career program, GPA after Beta Career program, Diploma grade and the last one is Grand GPA.

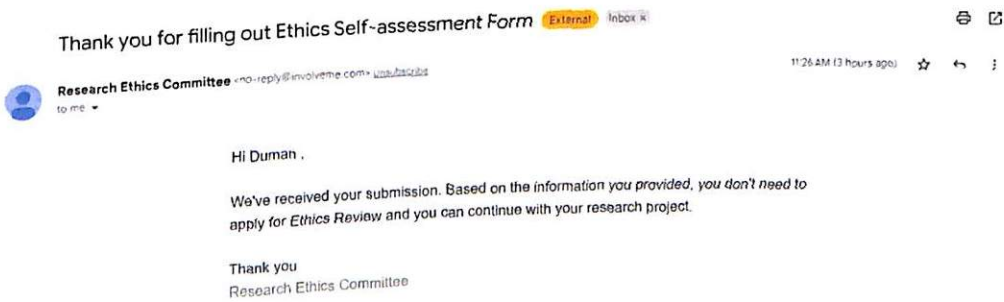


Figure 4.2: Permission from Research Ethics Committee.

The following stages are frequently included in the data collecting process:
 Clearly stating the reason for the data collection as well as the precise research

questions or hypotheses to be addressed constitutes the definition of the research goals.

Designing the data collecting technique entails choosing the most suitable data collection method(s) that are in line with the study's goals and are appropriate for the target population or sample's characteristics.

Creating the tools or equipment required to acquire the data, such as surveys, interviewing guidelines, or procedure for observational studies. These tools should be created to collect the required data and guarantee the correctness and reliability of the results.

Pretesting is doing a small-scale pilot test or pretest of the data collecting tools to spot any possible problems, improve the tools, and make sure the respondents can understand and use them.

Implementing data collecting is putting the data collection technique(s) into practice by talking to respondents, conducting surveys or interviews, keeping an eye on things, making observations, or compiling pertinent records or documents.

Data recording and organization: Accurate and thorough data collection via methodical organization. This can include using digital platforms, data input tools, or structured data gathering forms.

Implementing quality control methods, such as double-checking entries, resolving discrepancies, and carrying out data verification processes, to guarantee the authenticity and trustworthiness of the data.

Data management and storage: Keeping the data gathered safe and organized while complying to the moral and legal obligations for data security and privacy.

Data review and cleaning, checking for mistakes, outliers, or missing numbers, and carrying out appropriate data validation processes are all examples of data cleansing and validation.

Data analysis is the process of utilizing the right statistical or qualitative analytic tools to examine the data that has been acquired in order to get useful insights, come to conclusions, and respond to research questions or test hypotheses.

ses.

The process of gathering data is an important one since it serves as the basis for dependable and accurate analysis and interpretation. Effective data collecting ensures that the study goals are satisfied, enables decision-making based on evidence, and advances new knowledge and understanding across a range of disciplines.

4.2 Data Wrangling

Data cleansing, transformation, and preparation into a structured format appropriate for analysis is known as data wrangling, sometimes known as data munging or data preprocessing. It entails a number of activities, including addressing missing information, getting rid of duplicates, fixing inconsistencies, and rearranging data to satisfy the needs of data analysis or machine learning algorithms.

As raw data often includes mistakes, inconsistencies, or formatting problems that might impede correct analysis and interpretation, data wrangling is a crucial phase in the data analysis pipeline. Researchers and data analysts may increase the validity of their conclusions by doing data wrangling to verify the quality, completeness, and reliability of the data.

The following tasks are often performed during the data wrangling process:

Data cleaning entails dealing with missing values, which may include imputing them using the proper methods or selecting the optimal method for dealing with missing data depending on the particular context. It also entails locating any flaws or discrepancies in the data and fixing them.

Transforming the data into a specified format or structure is known as data transformation. It could include activities like changing data kinds, scaling or normalizing numerical variables, or (feature engineering) developing new variables based on current ones. A varied degree of granularity of data aggregation or summarization may also be a part of data transformation.

Data integration tries to mix or merge different datasets when there are several

data sources involved. Variables may need to be aligned, data discrepancies may need to be handled, and conflicts or inconsistencies across sources may need to be resolved.

Data reshaping: Depending on the needs of the analysis or modeling procedures, the data may sometimes need to be reshaped or reorganized. It could be necessary to do operations like pivoting, melting, or separating data into several tables or formats.

Managing outliers: It may be necessary to recognize and effectively handle outliers, which are data points that dramatically depart from the norm. This may include eliminating outliers, altering their values, or analyzing them independently.

Data validation and quality checks: To assure the correctness and dependability of the converted data, it is crucial to carry out data validation and quality checks at each stage of the data wrangling process. This may include checking the accuracy of the data, profiling the data, and doing consistency checks.

Depending on the unique needs and the kind of the data, several tools and approaches may be employed for data wrangling. Spreadsheet applications (like Microsoft Excel), programming languages (like Python or R) with data manipulation libraries, and specialist data wrangling software or frameworks are examples of frequently used technologies. In this dissertation both of them have been used. The gathered data of students is first of all saved in Microsoft Excel, which allows us formatting, arranging, and computing data in a spreadsheet. By structuring data using tools like Excel, data analysts and other users may make information easier to review as data is added or changed. In Excel, the rectangular containers are known as cells, and they are organized into rows and columns. It is shown in this figure.

Python is a popular and powerful programming language that offers many tools and libraries for data wrangling. Some of the most widely used ones are:

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

```

5 # Load the Excel file
6 data = pd.read_excel('beta.xlsx')
7
8 # Select the columns for correlation analysis
9 columns = ['Diploma', 'Diploma2']
10
11 # Extract the selected columns
12 selected_data = data[columns]
13
14 # Compute the correlation matrix
15 correlation_matrix = selected_data.corr()
16
17 # Plot the correlation matrix
18 sns.heatmap(correlation_matrix, annot=True, cmap='coolwarm')
19
20 # Display the plot
21 plt.show()

```

Listing 4.1: Pearson Correlation analysis

Pandas: a library that provides high-performance data structures and operations for manipulating tabular data. It supports various features such as indexing, slicing, grouping, pivoting, merging, and handling missing values. Pandas also integrates well with other Python libraries such as NumPy, SciPy, and Matplotlib.

Matplotlib: a library that provides visualization tools for creating plots, graphs, charts, and images from data. It supports various styles, formats, and interactive features. Matplotlib can be used to explore and analyze data visually and you can see it in Figure 3.4.

On top of Matplotlib, Seaborn is a Python data visualization library. It offers a sophisticated user interface for producing visually appealing and educational statistics visuals. When studying and displaying correlations in large, complicated datasets, Seaborn is very helpful. You may see the Python code for correlation analysis in Listing 4.1.

The code provided above demonstrates how to use Seaborn to create a heatmap of the correlation matrix using data from an Excel file named 'beta.xlsx'. The explanation of the code you can see in the part of correlation analysis.

Accurate and trustworthy results from data analysis depend on efficient data

wrangling. It lets analysts and researchers deal with data problems, lessen biases, and make sure the data is in a format that will be useful for upcoming modeling, analysis, or visualization activities.

Chapter 5

Product

5.1 Beta Career Website

In this section will be information about the Beta Career Program platform. Beta Career Program itself is an internship program for 4th year students. It is for the 7th semester. And it has its own website as we said before. There are three types of Beta Career. Students can choose one, which suits them best.

They are the following:

- Industrial Beta Career
- Academic Beta Career
- SDU Beta Career

Industrial Beta is the most popular type of Beta Career. Here, students work for companies (in industry). Some of the example companies include Beeline, Chocofamily, Kaspi, and Kazakhtelecom. Companies are verified by the Career Department at SDU.

Requirements and Limitations in Industrial Beta:

- Work needs to be full-time (40 hours/week) and related to in the specialty.
- Beta Career period fully matches with academic Fall Semester at the university.

- Permanent staff of the company should consist of at least 20 people, including at least 5 IT engineers, developers or IT specialists.
- Companies that are not eligible (Figure 5.1):
 1. Small businesses with no development or system orientation (e.g. computer shops)
 2. Companies that belong to student's parents or relatives

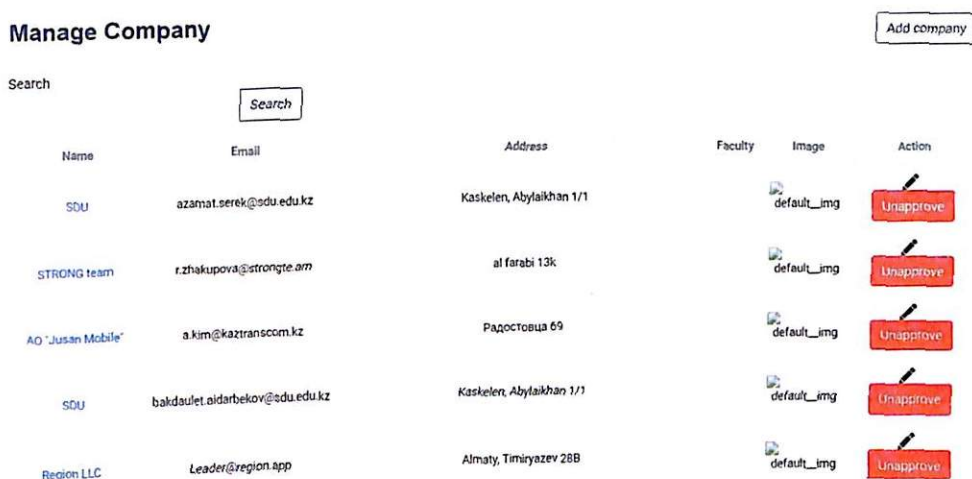


Figure 5.1: Managing Companies.

In Academic Beta Career students work at SDU as a research assistant or a teaching assistant. Students are supervised by an instructor, a researcher, or a professor at the Faculty of Engineering and Natural Sciences.

Requirements and Limitations in Academic Beta:

- Students with GPA 3.0 or higher are able to apply for Academic Beta.
- The workload, which will be given from the teacher's side, is 20 hours/week.
- Beta Career period fully matches with academic Fall Semester at the university.

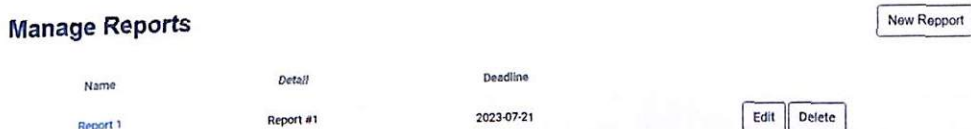
And the last one is SDU Beta. In this type of Beta Career students will have internships at SDU in positions that are different from the ones in Academic Beta. For example, Front-end or Back-end Developer at IT Department, Data Scientist

at Quality Assurance Department, etc. Any staff member at SDU supervises students.

Requirements and Limitations in SDU Beta:

- Work needs to be full-time (40 hours/week) and related to IT
- Beta Career period fully matches with academic Fall Semester at the university.

Now, about their grading. The first one is weekly reports. You can see it below in Figure 5.2.



Name	Detail	Deadline
Report 1	Report #1	2023-07-21

Figure 5.2: Weekly Reports.

Beta Career reports accepted in video format only. Participants can select one of two platforms to upload reports, they are YouTube and Instagram. Note that after selecting the platform and informing Beta Career coordinator about your choice, participants are not able to change it during the Beta Career program period. By using the website (betacareer.sdu.edu.kz) participants of the program have to send a link of their YouTube channel / Instagram account.

The last thing about Beta Career Program is its website. How to login and use it. Here are the steps of using the Beta Career platform (for students).

- Go to website betacareer.sdu.edu.kz
- Sign up as “student” (Figure 5.3)
- Search for vacancies or send ur own CV to companies
- Or just make your own CV and upload it
- And wait for replays

The image shows a registration form on a dark blue background. At the top, the title "Sign up" is centered in white. Below it are several input fields: "Select your position", "Select your faculty", "Enter email", "Enter password", "Enter First Name", "Enter Last Name", and "Your gender". Below these fields, there is a blue link that says "Required / Обязательно загрузить фото" (Required / Must upload photo). Underneath that is a file selection button labeled "Выберите файл" (Choose file). At the bottom of the form, there is a "Sign up" button and a link that says "Already have an account? Login".

Figure 5.3: Registration page.

- Make an agreement
- That's all

Chapter 6

Conclusions and future work

6.1 Conclusion

One of the most significant societal sectors is education since it has a significant impact on how both people and communities will develop in the future. However, a variety of variables, including socioeconomic status, the caliber of the instructor, and student motivation, among others, often have an impact on students' academic achievement. To enhance educational results, educators and policymakers must identify these determinants and forecast student achievement [26].

This research has focused on improving the education environment in Kazakhstan universities by developing a knowledge sharing system that acts as a Beta Career portal. The main goal of this portal is to improve the quality of education and to attempt to produce the right graduates based on the industry needs. Finally, it should be noted that the influence of internships on students' diploma projects and unemployment is a subject of major significance in the fields of education and workforce development. Several significant findings have been revealed via a study of the available literature and the investigation of prospective future research avenues.

Internships are generally acknowledged as being worthwhile experiences for both students and companies, creating a situation where both parties win. Stu-

dents acquire real-world experience, exposure to industry professionals, and improved employability, while firms gain new views and a potential talent pipeline. Internships' voluntary, transient character enables students to further their careers and contribute significantly to organizations without the burdens of long-term employment.

According to research, internships are very important in determining how employable college graduates are. Studies have linked internships to increased perceptions of job candidates' attractiveness, quicker and simpler job placements, better compensation levels, and more work satisfaction. Universities are also becoming more aware of the value of career-development strategies, such as internships, in giving graduates the skills they need to fulfill market needs.

The specific benefits of internships and how they work, however, are still up for discussion and contention. By performing long-term follow-up studies that examine the career paths of people who have done internships, future research may add to this discussion. Such studies may provide light on the long-term consequences of internships on job security, professional development, wage growth, and outcomes particular to a certain sector. Researchers can identify the precise advantages of internship programs by comparing the results of individuals who took part and those who did not.

Future studies might also look at the variables that modify or mediate the link between internships and long-term professional results. The effect of internships on participants' career pathways may depend on a variety of variables, including area of study, academic achievement, and demographic traits. By being aware of these elements, internship programs may be improved and made to better suit the requirements of various student groups.

In conclusion, the effect of internships on students' graduation projects and unemployment is a complicated and varied subject that merits additional research. Policymakers, educators, and employers may improve internship programs, acquire insight into the long-term worth of internships, and facilitate graduates' transition into the workforce by doing thorough research. Internships may continue to be a key component in preparing students for successful careers and

lowering unemployment rates by bridging the divide between academics and industry.

6.2 Future work

Tracking students' career paths and evaluating the long-term effects on their job results are the goals of performing long-term follow-up studies. This kind of study would include gathering information from participants over a lengthy period of time, usually many years after their internship experience.

Researchers may assess the enduring impact of internships on participants' professional pathways by performing long-term follow-up studies. This could include evaluating variables including career progression, wage growth, and industry-specific results. Researchers may learn more about the particular advantages and disadvantages of internship programs by comparing the career paths of individuals who took part and those who did not.

Do people who have done internships have better rates of employment stability compared to those who have not? are just a few of the issues that this kind of study may assist resolve. Do they have a higher chance of advancing in their jobs more quickly? Do they gradually see larger income growth? These studies may be a helpful source of knowledge on the long-term benefits and influence of internships on participants' career results.

The association between the quality of internship experiences and long-term professional results may also be investigated in long-term follow-up research. Examining various elements in connection to participants' career paths includes looking at things like the nature of the duties and responsibilities during the internship, the amount of mentoring and advice offered, and the networking possibilities available.

These studies might also look at possible moderators or mediators of the link between internships and long-term professional results. For instance, researchers may look at how the participants' academic standing, demographics, or topic of study affect how internships affect their career prospects.

A thorough knowledge of the long-lasting effects of internships on participants' career trajectories may be gained by conducting long-term follow-up studies, which can also help in the creation and administration of successful internship programs.

Future studies can also look at the particular processes and elements that support the beneficial effects of internships on career trajectories. This could include looking at the function of mentoring, the development of certain skills, the creation of professional networks, and the applicability of internship experiences to different career responsibilities. Understanding these underlying principles may help create internship programs that are more successful and provide useful information for students, educational institutions, and companies that want to maximize the advantages of internships. Additionally, finding out what employers and other industry experts think about the value of internships and what they want to get out of them helps make internship programs match business demands and improve students' readiness for the workforce.

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Appendix A



Duman Telman


 Home

 Edit Profile

 Grades

 Manage staff

 Set password

 Term settings

Manage reports

 Manage registration

 Assign student

 Manage company

Figure 1: Admin features.

Assign student to company

Student
Open this select menu

Company
Select company

Save

Show 10 entries

student	company
190103449@stu.sdu.edu.kz	None
190107027@stu.sdu.edu.kz	None

Showing 1 to 2 of 2 entries

Search: Previous 1 Next

Figure 2: Assigning student to company.

Manage Registration

Search by student ID

Beta type:

Registration status: Save date

Student	SDU email	Supervisor	Beta type	Agreement	Status	Action	Reason
Sultan Rakymzhan	190103449@stu.sdu.edu.kz	r.zhakupova@strongte.am	Industrial	Download	Pending	Confirm Reject	<input type="text"/>
Arystan Bissimbayev	190107027@stu.sdu.edu.kz	n.aldebek@kazdream.kz	Industrial	Download	Pending	Confirm Reject	<input type="text"/>

< 1 2 3 >

Figure 3: Manage Registration.

Save

Term

Name	2023-2023	<input type="checkbox"/>
Registration end	20.08.2023	<input type="checkbox"/>
Grading start	05.09.2023	<input type="checkbox"/>
Grading end	30.12.2023	<input type="checkbox"/>
Term end	01.01.2024	<input type="checkbox"/>

Figure 4: Setting Term.